



Distribution of latex producing angiosperm in Parangipettai, Cuddalore, Tamilnadu, India

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General Note



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ABSTRACT

The present work aims to know the distribution of latex producing trees, shrubs, herbs, and climbers in the Parangipettai coastal environment. The study revealed that the presence of 49 latex producing plant species. These 49 species are belonging to 35 genera in 5 families. The overall recorded plant species from Porto Novo, 19 are herbs, 14 are trees, 10 are shrubs, and others are climbers. 4 terrestrial and one mangrove plant species fell under the least concern category in the IUCN red list. There are 19 latex secreting plant species recorded in Parangipettai occurring under the naturalized or alien invasive category.

Keywords: Cuddalore; dicotyledonous; Latex; monocotyledon; milky plants

1. INTRODUCTION

Latex is a thick or thin, creamy (white, yellow, orange), milky emulsion, and aqueous suspension. Laticifers are responsible for producing latex in plant species. Latex is causing dermatitis in human beings. Some of the places in world latex species were cures the corns and calluses. Secondary producers are more poisonous defense metabolites in latex plant species than other plant species. Latex plant species are major source for industrial, pharmacological applications, etc, (James 1887; Lewisohn, 1991; Mahlberg, 1993; Agrawal and Konno, 2009). The present study aims to record the distribution of latex producing angiosperm plant species.

2. MATERIALS AND METHODS

2.1. Description of the study area

The present surveys were carried throughout the southeast coast of Parangipettai, Cuddalore, Tamilnadu, India (Figure, 1). Study area GPS is location 11°29'28" N and 79°45'55" E. Survey was conducted entire Porto Novo (11. 81 sq. km). Study area mostly occupied by sandy coastal alluvium soil, red soil and mangrove. The temperature of the study area varies from 42 °C maximum to 28 °C minimum and it is an average annual rainfall is 1206.7 mm due to the northeast and south-east monsoon.



Figure 1 Latex plant diversity study area (Parangipettai, Cuddalore, Tamilnadu, India)

2.2. Line Transect Method

A line transects sampling method was employed to survey the latex producing plants species distribution in Parangipettai coastal environ (Buckland et al., 2007). The survey began in May 2018 and end in May 2019. An entire survey covers the places of mangroves, dunes, saltmarsh, aquatic and terrestrial. The study area divided into 6 transects connecting roadways to Parangipettai (i) Killai, ii) Mutlur, iii) Pudhu chattiram, iv) Samiyar pettai, v) Mudasal odai, vi) Annan koil Fishing centre) coastal villages of 11.81 sq.km. The survey was carried between 8.00 am to 11.00 am. All latex plant species were identified as in-situ and ex-situ in CAS in Marine biology, Annamalai University. The Identified plant species were classified into herbs, shrubs, climbers and trees (USDA, 2019). The recorded latex plant species were compared with the division of Extinct, Extinct in the wild, Critically Endangered, Endangered, Vulnerable, and Nearby Threatened, Least concern, data deficiency and Not Evaluated and alien Invasive species (Sudhakar Reddy et al., 2008; GISD, 2019; IUCN, 2019). The plant species recorded were further clarified with alien invasive species and naturalized plant species.

3. RESULTS AND DISCUSSION

The survey was recorded 49 latex producing plants species belonging to 35 genera of 5 families in Porto Novo, Cuddalore and Tamilnadu, India. In latex families, 14 species and 10 genera are Apocynaceae followed by 12 species and 11 genera are Asteraceae, 12 species and 8 genera are Euphorbiaceae, 8 species and 3 genera are Moraceae and 3 species and 3 genera are Asclepiadaceae (Fig 2; Table 1). According to the habit, in herbs distribution Asteraceae is dominant and Moraceae is nil, in shrubs distribution Apocynaceae was high and Moraceae is low, in trees distribution, Moraceae occupied vast and Asclepiadaceae and Asteraceae was nil and in climbers distribution, Apocynaceae is high and Moraceae and Asteraceae is nil (Fig 3; Table 1). Plants species of *Nerium oleander*, *Wrightia tinctoria*, *Eclipta prostrata*, *Euphorbia tirucalli* and *Excoecaria agallocha* are reported under least concern category by IUCN (IUCN, 2019; Fig 4; Table 1). Recorded plants species of *Allamanda cathartica*, *Catharanthus roseus*, *Cryptostegia grandiflora*, *Nerium oleander*, *Plumeria rubra*, *Rauvolfia tetraphylla*, *Calotropis gigantea*, *Ageratum conyzoides*, *Blumea Oblique*, *Chrysanthemum grandiflora*, *Chrysanthemum indicum*, *Eclipta prostrate*, *Emilia sonchifolia*, *Tagetes erecta*, *Tridax procumbens*, *Xanthium strumarium*, *Euphorbia heterophylla*, *Euphorbia hirta* and *Ricinus communis* are coming under naturalized or alien invasive category (Sudhakar Reddy et al., 2008; Fig 5; Table 1). Screened alien invasive plant species come from Europe, America, Mexico, West Indies, Brazil, Madagascar, Mediterranean and West Asia countries. There were a few latex plant species studies in the world were discussed and compared with the present study. The milkweeds were overall reviewed by Joseph, 1887. Similarly, the geographical distribution of latex species was done by Lewinsohn, 1991. Mahlberg, 1993 reviewed, particularly about laticifers. Agarwal and Kono, 2009, were reviewed about latex plant species ecology and evolution of defence mechanisms against herbivory. Recent studies were focusing on angiosperms aspects, it includes latex species too.

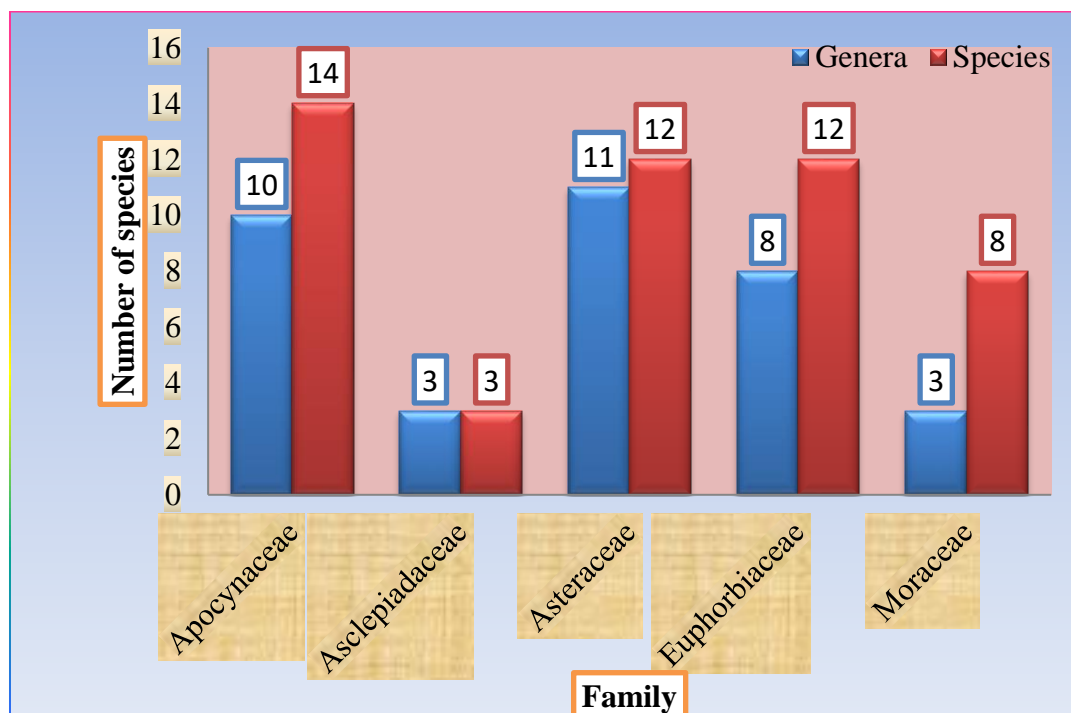


Figure 2 Number of Genera and Species of Latex plant occupied in Parangipettai

Table 1 Check-list of latex plant species with habit, IUCN and Invasive species status

Family	Scientific Name	Common Name	Habitat	IUCN	Invasive
Apocynaceae	<i>Allamanda blanchetii</i> A.DC.	Purple allamanda	H	N	N
	<i>Allamanda cathartica</i> L.	Golden trumpet vine, allamanda vine	C	N	Y
	<i>Carissa carandas</i> L.	Karanda, kalakkai	S	N	N
	<i>Carissa macrocarpa</i> (Eckl.) A.DC.	Natal plum	S	N	N
	<i>Carissa spinarum</i> L.	Wild karanda, Chirukila	S	N	N

	<i>Catharanthus roseus</i> (L.) G.Don.	Periwinkle, Madagascar periwinkle, rosy periwinkle, vinca	H	N	Y
	<i>Cryptostegia grandiflora</i> (Roxb.) R.Br.	Rubber vine, Palai	C	N	Y
	<i>Ichnocarpus frutescens</i> (L.) W.T.Aiton.	Black creeper, Paravalli, udargodi, udarkkoti	C	N	N
	<i>Nerium oleander</i> L.	Oleander, arali	S	LC	Y
	<i>Plumeria rubra</i> L.	Frangipani, plumeria, Nela sampangi	T	N	Y
	<i>Rauvolfia tetraphylla</i> L.	Wild snake root, devil pepper, be still tree, American serpentwood, be still tree, devil root, milkbush, Pampukaalaachchedi, Paambukkala	S	N	Y
	<i>Tabernaemontana divaricata</i> (L.) R.Br.ex. Roem and Schult.	Crape jasmine, moonbeam, carnation of India, Nandiar vattai	T	N	N
	<i>Wrightia antidysenterica</i> (L.) R. Br.	Arctic snow, winter cherry tree, milky way, snowflake, pudpitchaya, sweetindrajao, hyamaraca	S	N	N
	<i>Wrightia tinctoria</i> R.Br.	Sweet indrajao, pala indigo plant, dyers's oleander, Paalai	T	LC	N
Asclepiadaceae	<i>Calotropis gigantea</i> (L.) Ait.	Crown flower, Erukku	S	N	Y
	<i>Pergularia daemia</i> (Forsk).	Pergularia, Uttamani, seendhal kodi	C	N	N
	<i>Hemidesmus indicus</i> (L.) R. Br	Indian sarsaparilla, Nannaari, sugandipala	C	N	N
Asteraceae	<i>Ageratum conyzoides</i> L.	Goat weed, billy goat weed, tropical whiteweed, pumpillu, Appakutti	H	N	Y
	<i>Blumea Obliqua</i> (L.) Druce.	spiny leaved blumea	H	N	Y
	<i>Chrysanthemum grandiflora</i> Tzeuleu.	cut mum, garden mum, pot mum	H	N	Y
	<i>Chrysanthemum indicum</i> L.	Indian Chrysanthmum, Chrysanthemum, Saamandi, Javadi	H	N	Y
	<i>Cyanthillium cinereum</i> (L.) H.Rob.	Little iron wood, purple fleabane, Puvamkuruntal	H	N	N
	<i>Eclipta prostrata</i> L.	False daisy, trailing eclipta, Karisilaanganni, Koti-K-Kaiyan	H	LC	Y
	<i>Emilia sonchifolia</i> (L.) DC.ex. Wight.	Purple sow thistle, cupid's shaving brush, Emilia, flora's paint brush, red tassel flower, Muyalcevi, mayarcevi	H	N	Y
	<i>Sphagneticola trilobata</i> (L.) Pruski.	Yellow dots, creeping daisy, wedelia	H	N	N
	<i>Tagetes erecta</i> L.	Marigold, African, marigold, Aztec marigold, Thulikkaimallikai, Chendumalli.	H	N	Y
	<i>Tithonia diversifolia</i> (Hemsl.) A.Gray.	Gaint Mexican sunflower, Japanese sunflower, shrub sunflower, tree marigold, Kaatusuriagandhi	S	N	N
	<i>Tridax procumbens</i> L.	Tridax daisy, coat buttons, Mexican daisy, Kenathuppoondu, Vettukkaaya-Thalai	H	N	Y

	<i>Xanthium strumarium</i> L.	Common cocklebur, broad bur, burdock datura, clotbur, rough cocklebur, Marul-umattai	H	N	Y
Euphorbiaceae	<i>Acalypha indica</i> L.	Indian copper leaf, Indian nettle, three seeded mercury, Kuppaimeni, koli-p-puntu	H	N	N
	<i>Codiaeum variegatum</i> (L.) Rumph .ex.A.Juss.	Croton, Kozhivalan.	H	N	N
	<i>Croton bonplandianus</i> Bail	Attupuntu, Reilpoondu	H	N	N
	<i>Excoecaria agallocha</i> L.	Blinding Tree, Milky mangrove, Blind-your-eye mangrove, River poison tree, tillai	T	LC	N
	<i>Euphorbia heterophylla</i> L. Bayer.	Wild poinsettia, wild spurge, lesser green poinsettia	H	N	Y
	<i>Euphorbia hirta</i> L.	Asthma weed, common spurge, cats hair, Ammampaccharisi	H	N	Y
	<i>Euphorbia tirucalli</i> L.	Pencil tree, firestick plants, indian tree spurge, naked lady, pencil cactus, sticks on fire, Cakkalavi, catukalavi, kalli	S	LC	N
	<i>Jatropha gossypifolia</i> L.	Bellyache bush, cotton leaf physic nut, Siriaamanakku, Adalai	S	N	N
	<i>Jatropha curcas</i> L.	Physic Nut, Jatropha, Barbados nut, Kattukkotai	T	N	N
	<i>Pedilanthus tithymaloides</i> (L.) Poit.	Devils's backbone, Japanese poinsettia, slipper spurge, redbird cactus, Christmas candle	H	N	N
	<i>Ricinus communis</i> L.	Castor bean, cator oil plant, wonder tree, Aamanaku, vilakennai kottaimuttu	T	N	Y
	<i>Tragia hispida</i> Willd.	Bristly climbing nettle, Kanchori	C	N	N
Moraceae	<i>Artocarpus heterophyllus</i> Lamk.	Jackfruit, jackfruit tree, Palaa	T	N	N
	<i>Ficus benghalensis</i> (L.) Rafin.	Banyan tree, Alai	T	N	N
	<i>Ficus elastica</i> Roxb. ex Hornem	Rubber tree, rubber plant, indian rubber tree, indian rubber bush	T	N	N
	<i>Ficus hispida</i> L.	Hairy fig, devil fig, opposite leaved fig tree, rough leaved fig, Peyatthi	T	N	N
	<i>Ficus racemosa</i> L.	Cluster fig, Atti	T	N	N
	<i>Ficus religiosa</i> L.	Peepal, holy fig tree, peepul, sacred fig tree, Arasa maram, pippalam	T	N	N
	<i>Ficus benamina</i> L.	Weeping Fig, benjamin tree, golden fig, Java fig, tropic-laurel, Chinese banyan, nintamaravakai, vella	T	N	N
	<i>Morus alba</i> L.	White Mulberry, Russian Mulberry, Silkworm Mulberry, Kambli chedi	T	N	N

N – No; Y-Yes; LC- Least Concern; T- Tree; S- Shrub; C- Climber

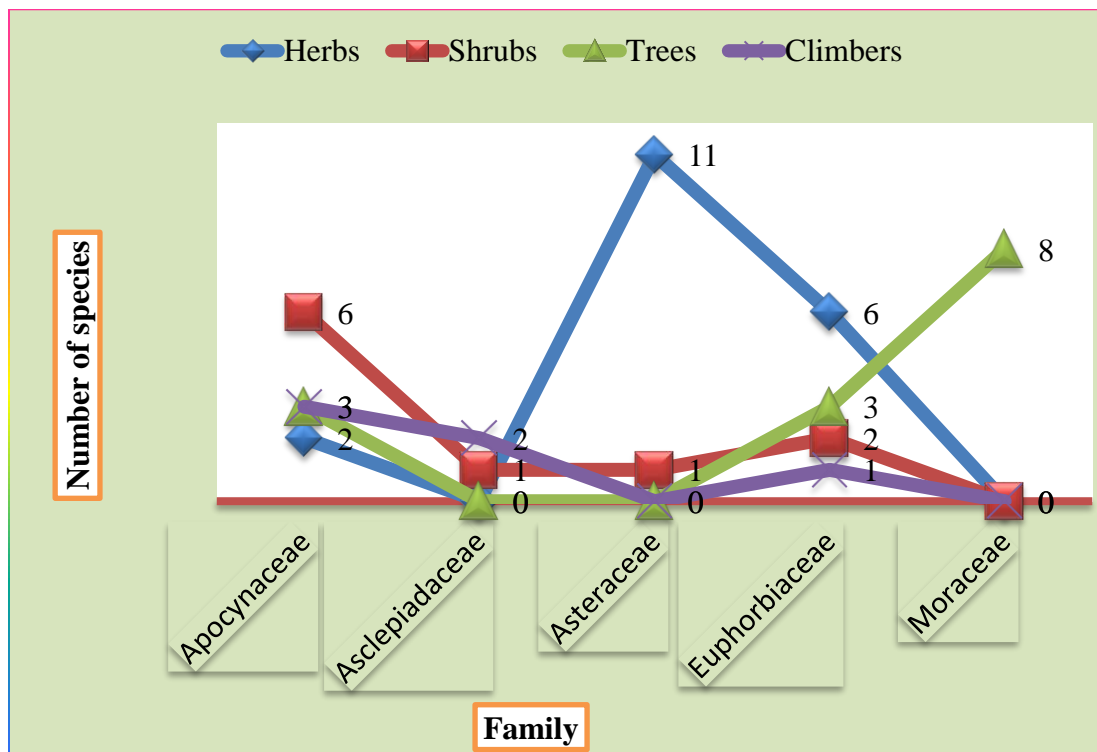


Figure 3 Number of Herb, Shrub, Tree and Climbers in Latex plant species

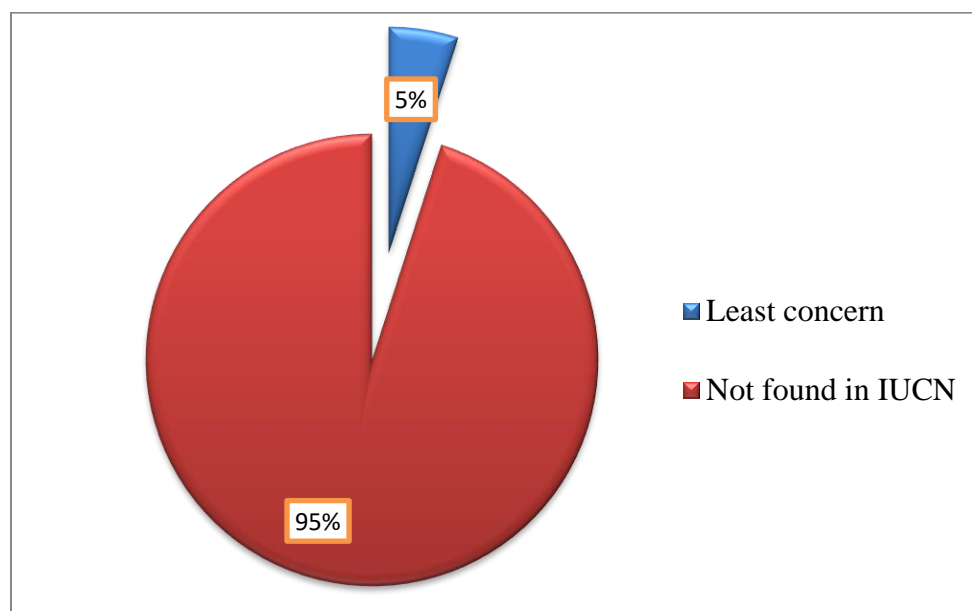


Figure 4 IUCN categories of latex plant species

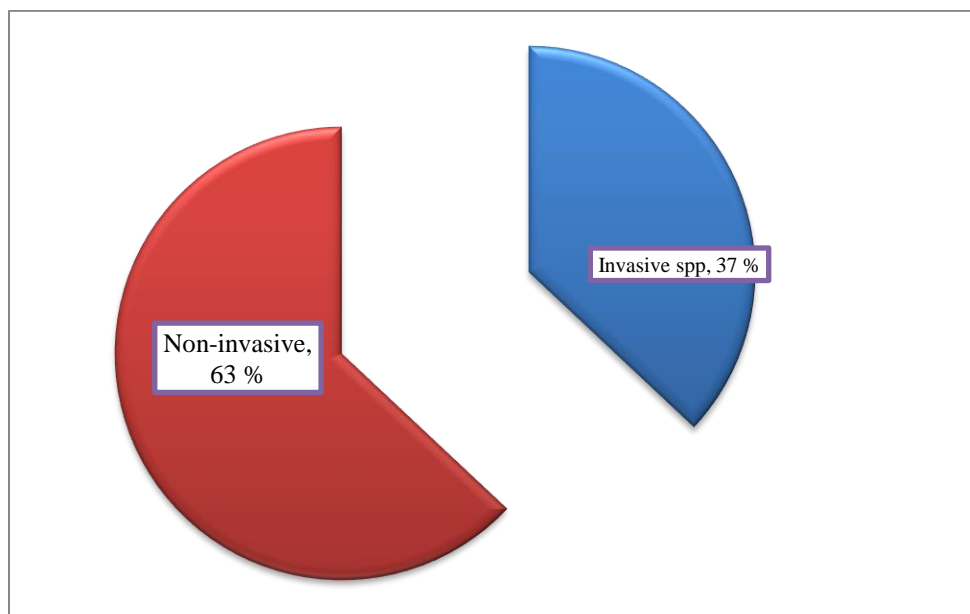


Figure 5 Invasive species percentage in the study area

4. CONCLUSION

The distribution of latex plant species alone was recorded in Parangipettai Panchayats, Chidambaram taluk, Cuddalore district, Tamilnadu at India. Due to Domestication, Urbanization, Industrialization and other anthropogenic influence native and wild latex plants coming under IUCN and Invasive alien species divisions. The native plants' species were replaced by non-native and cultivatable plant species from the study area. The present study is also going to cover the application possibility of latex plants species against marine foulers.

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Conflict of Interest: The authors declare that there are no conflicts of interests.

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